

**REMARKS****INTRODUCTION:**

In accordance with the foregoing, claims 1, 7, 9, 12, 20, 23, 25, 26, 27, and 28 have been amended, and claims 29-38 have been cancelled without prejudice or disclaimer. Applicants reserve the right to file, if desired, divisional application(s) for claims 29-38. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1-28 are pending and under consideration. Reconsideration is respectfully requested.

**ENTRY OF RESPONSE UNDER 37 C.F.R. §1.116:**

Applicants request entry of this Rule 116 Response and Request for Reconsideration because:

(a) it is believed that the amendments of claims 1, 7, 9, 12, 20, 23, 25, 26, 27, and 28 put this application into condition for allowance;

(b) the amendments were not earlier presented because the Applicants believed in good faith that the cited prior art did not disclose the present invention as previously claimed;

(c) the amendments of claims 1, 7, 9, 12, 20, 23, 25, 26, 27, and 28 should not entail any further search by the Examiner since no new features are being added or no new issues are being raised; and/or

(d) the amendments do not significantly alter the scope of the claims and place the application at least into a better form for appeal. No new features or new issues are being raised.

The Manual of Patent Examining Procedures sets forth in §714.12 that "[a]ny amendment that would place the case either in condition for allowance or in better form for appeal may be entered." ( Underlining added for emphasis) Moreover, §714.13 sets forth that "[t]he Proposed Amendment should be given sufficient consideration to determine whether the claims are in condition for allowance and/or whether the issues on appeal are simplified." The Manual of Patent Examining Procedures further articulates that the reason for any non-entry should be explained expressly in the Advisory Action.

**RESPONSE TO EXAMINER'S RESPONSE TO ARGUMENTS:**

The Examiner disagreed that the terminology "beside" means only left or right, but submitted that "beside" also included above or below.

Claim 1 has been amended as follows to clarify the positioning of the permanent magnet(s): "A magnetron, comprising: a ring-shaped anode forming a plurality of resonance circuits wherein the ring-shaped anode is arranged to provide a ring lying in a horizontal plane; a cathode disposed at an axial center of the anode to emit thermions, separated from the anode by a predetermined space; at least one permanent magnet ~~provided beside~~ arranged co-axially with the anode along a horizontal axis lying in the horizontal plane to reduce demagnetization of the at least one permanent magnet and a height of the magnetron; and a magnetic flux carrying unit to carry magnetic flux generated by the at least one permanent magnet to the predetermined space." Independent claims 7, 9, 12, 20, 23, 25, 26, 27, and 28 have been amended in similar fashion. Thus, independent claims 1, 7, 9, 12, 20, 23, 25, 26, 27, and 28 are now submitted to clearly identify the position of the permanent magnet(s).

#### **REJECTION UNDER 35 U.S.C. §102:**

In the Office Action, at pages 2-9, claims 1-13 and 17-22 were rejected under 35 U.S.C. §102 as being anticipated by Tsuzurahara (USPN 4,426,601; hereafter, Tsuzurahara). This rejection is traversed and reconsideration is requested.

As noted above, independent claims 1, 7, 9, 12, and 20 have been amended to show more clearly the position of the permanent magnet(s), wherein the ring-shaped anode is located with the ring-shape lying in a horizontal plane and the permanent magnet(s) is/are arranged co-axially with the anode along a horizontal axis lying in the horizontal plane to reduce demagnetization of the at least one permanent magnet and a height of the magnetron.

Hence, it is respectfully submitted that the present claimed invention (see amended independent claims 1, 7, 9, 12, and 20) is different from Tsuzurahara in that, in the present claimed invention, the ring-shaped anode is arranged with the ring-shape in a horizontal plane, and there is at least one permanent magnet arranged co-axially with the anode along a horizontal axis lying in the horizontal plane to reduce demagnetization of the at least one permanent magnet and a height of the magnetron. In contrast, in the conventional magnetron of Tsuzurahara, the permanent magnets are provided above and below the anode in consideration of the uniformity and symmetry of magnetic flux across the activating space of the magnetron, so that, in the conventional magnetron of Tsuzurahara, the height and volume of the magnetron and the lengths of parts (such as the center lead, the side lead, the antenna, the upper and lower shield cups and ceramic (not shown)), which are made of expensive materials, are increased, thus increasing the weight and manufacturing cost of the magnetron (see paragraph 6 of the specification).

Also, in the conventional magnetron, the permanent magnets come in tight contact with

the anode heated by the absorption of thermions to suppress an increase in the volume of the magnetron. Hence, the demagnetization of the permanent magnets is caused by the heating of the permanent magnets, and the size of the magnetron is increased in consideration of the decrease of the oscillation efficiency, thus reducing the oscillation efficiency of the magnetron and increasing the weight and manufacturing cost of the magnetron, respectively. In contrast, in the present invention, the placement of the permanent magnet(s) co-axially with the anode along a horizontal axis lying in the horizontal plane of the ring-shape of the anode reduces the demagnetization of the permanent magnet and the height of the magnetron, in comparison with the magnetron placement of the permanent magnets of Tsuzurahara above and below the anode (see paragraph 7 of the specification and FIG. 2).

Thus, it is respectfully submitted that amended independent claims 1, 7, 9, 12, and 20 are not anticipated under 35 U.S.C. §102(b) by Tsuzurahara (USPN 4,426,601). Since claims 2-6, 8, 10-11, 13, 17-19 and 21-22 depend from amended independent claims 1, 7, 9, 12 and 20, respectively, claims 2-6, 8, 10-11, 13, 17-19 and 21-22 are submitted not to be anticipated under 35 U.S.C. §102(b) by Tsuzurahara (USPN 4,426,601) for at least the reasons that amended claims 1, 7, 9, 12 and 20 are submitted not to be anticipated under 35 U.S.C. §102(b) by Tsuzurahara (USPN 4,426,601).

#### **REJECTION UNDER 35 U.S.C. §103:**

A. In the Office Action, at pages 9-10, claims 14-16 were rejected under 35 U.S.C. §103 as being unpatentable over Tsuzurahara (USPN 4,426,601; hereafter, Tsuzurahara). The reasons for the rejection are set forth in the Office Action and therefore not repeated. The rejection is traversed and reconsideration is requested.

As noted above, independent claim 12 has been amended to clarify the positioning of the permanent magnet(s): "A magnetron, comprising: a ring-shaped anode forming a plurality of resonance circuits wherein the ring-shaped anode is arranged to provide a ring lying in a horizontal plane; a cathode disposed at an axial center of the anode to emit thermions, separated from the anode by a predetermined space; at least one permanent magnet arranged co-axially with ~~provided beside~~ the anode along a horizontal axis lying in the horizontal plane to reduce demagnetization of the at least one permanent magnet and a height of the magnetron; upper and lower pole pieces carrying the magnetic flux generated by the permanent magnets to upper and lower portions of the predetermined space, respectively; upper and lower yokes magnetically connecting the at least one permanent magnet with the upper and lower pole pieces, respectively, and covering tops and bottoms of the permanent magnets, respectively; and an attaching unit to attach the permanent magnets to the upper and lower yokes."

Tsuzurahara does not disclose or suggest the magnetron as recited in amended claim 12 since Tsuzurahara discloses only the placement of permanent magnets above and below the anode, in contrast to amended claim 12, in which the permanent magnet(s) are arranged co-axially with the anode along a horizontal axis lying in the horizontal plane (wherein the ring-shaped anode is arranged with the ring-shape lying in the horizontal plane) to reduce demagnetization of the at least one permanent magnet and a height of the magnetron. Thus, it is respectfully submitted that amended claim 12 is patentable under 35 U.S.C. §103 over Tsuzurahara (USPN 4,426,601).

Since claims 14-16 depend indirectly from amended claim 12, claims 14-16 are submitted to be patentable under 35 U.S.C. §103 over Tsuzurahara (USPN 4,426,601) for at least the reasons that amended claim 12 is submitted to be patentable under 35 U.S.C. §103 over Tsuzurahara (USPN 4,426,601).

B. In the Office Action, at pages 10-11, claims 23-28 were rejected under 35 U.S.C. §103 as being unpatentable over Tsuzurahara (USPN 4,426,601; hereafter, Tsuzurahara) and Seong (USPN 5,541,391; hereafter, Seong). The reasons for the rejection are set forth in the Office Action and therefore not repeated. The rejection is traversed and reconsideration is requested.

Independent claims 23 and 25-28 have been amended in accordance with the amendment to claim 1 (see above). Hence, amended independent claims 23 and 25-28 disclose that the permanent magnet(s) are arranged co-axially with the anode along a horizontal axis lying in the horizontal plane (wherein the ring-shaped anode is arranged with the ring-shape lying in the horizontal plane) to reduce demagnetization of the at least one permanent magnet and a height of the magnetron.

In contrast, Tsuzurahara discloses only the placement of permanent magnets above and below the anode, and Seong (see FIG. 10) discloses that the permanent magnets 450a and 450b are located above the anode 490.

Thus, it is respectfully submitted that neither Tsuzurahara nor Seong recites positioning of at least one permanent magnet co-axially with the anode along a horizontal axis lying in the horizontal plane (wherein the ring-shaped anode is arranged with the ring-shape lying in the horizontal plane) to reduce demagnetization of the at least one permanent magnet and a height of the magnetron, as is recited by amended independent claims 23 and 25-28. Hence, it is respectfully submitted that amended independent claims 23 and 25-28 are patentable under 35 U.S.C. §103 over Tsuzurahara (USPN 4,426,601) and Seong (USPN 5,541,391), alone or in

combination.

Since claim 24 depends from amended claim 23, claim 24 is submitted to be patentable under 35 U.S.C. §103 over Tsuzurahara (USPN 4,426,601) and Seong (USPN 5,541,391), alone or in combination, for at least the reasons that amended claim 23 is submitted to be patentable under 35 U.S.C. §103 over Tsuzurahara (USPN 4,426,601) and Seong (USPN 5,541,391), alone or in combination.

#### CONCLUSION:

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot, and further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited. At a minimum, this Amendment should be entered at least for purposes of Appeal as it either clarifies and/or narrows the issues for consideration by the Board.

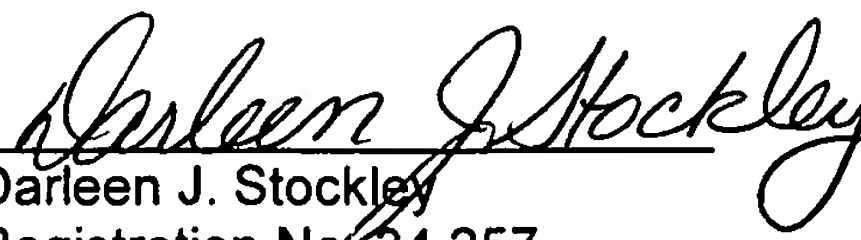
If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited and possibly concluded by the Examiner contacting the undersigned attorney for a telephone interview to discuss any such remaining issues.

If there are any underpayments or overpayments of fees associated with the filing of this Amendment, please charge and/or credit the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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